

Curriculum of B.Tech. Program in Mathematics and Computing

(from AY 2023-24 onwards)



2nd Year B.Tech. (Mathematics and Computing)

Semester III

Course Code	Course Title	Weekly Contact Hours (L-T-P)	Credits
ZZ 2XX	Course-I for Minor Program	X-X-X	3
MA 205	Complex Analysis	3-1-0 (1/2 semester)	2
MA 207	Differential Equations-II	3-1-0 (1/2 semester)	2
MA 209	Foundations of Mathematical Analysis	2-1-0	3
MA 211 / CS 201	Discrete Mathematical Structures	2-1-0	3
MA 213 / CS 203	Data Structures and Algorithms	2-1-0	3
MA 215	Probability and Statistics	2-1-0	3
MA 253 / CS 253	Data Structures and Algorithms Lab	0-0-3	1.5
MA 2XX	Department Elective (DE-1)	X-X-X	3
Total			20.5/23.5

Semester IV

Course Code	Course Title	Weekly Contact Hours (L-T-P)	Credits
ZZ XXX	Course-II for Minor Program	X-X-X	3
MA 204N	Numerical Methods	2-0-2	3
MA 202	Multivariate Calculus and Measure Theory	2-1-0	3
MA 206	Mathematical Logic and Theory of Computation	2-1-0	3
MA 208 /CS 204	Design and Analysis of Algorithms	2-1-0	3
MA 254 /CS 254	Design and Analysis of Algorithms Lab	0-0-3	1.5
MA 2XX	Department Elective (DE-2)	X-X-X	3
ZZ 2XX	Institute Elective-1	X-X-X	3
Total			19.5/22.5

3rd Year B. Tech. (Mathematics and Computing)

Semester V

Course Code	Subject Name	Weekly Contact Hours (L-T-P)	Credits
ZZ 3XX	Course-III for Minor Program	X-X-X	3
MA 301	Matrix Computations	2-0-2	3
MA 305	Data Science	2-0-2	3
MA 307 / CS 307	Optimization Algorithms and Techniques	2-1-0	3
MA 303 / CS 303	Operating Systems	2-1-0	3
MA 313 / CS 313	Computer Networks	2-0-2	3
MA 357 / CS 357N	Optimization Algorithms and Techniques Lab	0-0-2	1
MA 353 / CS 353N	Operating Systems Lab	0-0-2	1
MA 3XX	Department Elective (DE-3)	X-X-X	3
ZZ 3XX	Institute Elective-2	X-X-X	3
Total			23/26

Semester VI

Course Code	Subject Name	Weekly Contact Hours (L-T-P)	Credits
ZZ 3XX	Course-IV for Minor Program	X-X-X	3
MA 302	Statistical Inference	2-0-2	3
MA 306	Monte-Carlo Simulation	2-0-2	3
MA 308	Parallel Computing Methods	0-1-2	2
MA 304 /CS 304N	Computational Intelligence	2-1-0	3
MA 354 /CS 354N	Computational Intelligence Lab	0-0-3	1.5
MA 3XX	Department Elective (DE-4)	X-X-X	3
MA 3XX	Department Elective (DE-5)	X-X-X	3
ZZ 3XX	Institute Elective-3	X-X-X	3
Total			21.5/24.5

4th Year B. Tech. (Mathematics and Computing)

Semester VII

Course Code	Subject Name	Weekly Contact Hours (L-T-P)	Credits
ZZ 4XX	Course-V for Minor Program	X-X-X	2
MA 493	B. Tech. Project (BTP)	0-0-32	16
MA 495	Internship-I	X-X-X	1
MA 497	Internship-II	X-X-X	1
Total			18/20

Semester VIII

Course Code	Subject Name	Weekly Contact Hours (L-T-P)	Credits
MA 4 XX	Department Elective (DE-6)	X-X-X	3
MA 4 XX	Department Elective (DE-7)	X-X-X	3
ZZ 4XX	Institute Elective-4	X-X-X	3
ZZ 4XX	Institute Elective-5	X-X-X	3
ZZ 4XX	Institute Elective-6	X-X-X	3
Total			15

List of the Elective Courses

Semester	Course Code	Course Title	Weekly Contact Hours (L-T-P)	Credits
III (DE-1)	MA 217	Linear Programming	2-1-0	3
	MA 219	Introduction to Dynamical Systems	2-0-2	3
IV (DE-2)	MA 210	Elementary Number Theory and Algebra	2-1-0	3
	MA 212	Regression Analysis	2-1-0	3
V (DE-3)	MA 309	Numerical Methods for Partial Differential Equations	2-0-2	3
	MA 311	Statistical Distribution Theory	2-1-0	3
VI (DE-4,5)	MA 310	Algorithmic Techniques and Applications of Data Science	2-1-0	3
	MA 314	Random Matrices	2-1-0	3
VIII (DE-6,7)	MA 452/ MA 652	Theory of Transforms	2-1-0	3
	MA 407/ MA 607	Nonlinear Dynamics and Computations	2-0-2	3
	MA 454/ MA 654	Mathematical Modeling and Simulations	2-0-2	3
	MA 405/ MA 605	Differential Equations in Population Dynamics	2-0-2	3
	MA 402	Industrial Statistics	2-1-0	3
	MA 404	Foundation of Approximation Theory	2-1-0	3
	MA 406	Graph Theory	2-1-0	3
	MA 408	Mathematical Theory of Waves	2-1-0	3
	MA 414	Time Series Analysis	2-1-0	3
	MA 416	Integral Equations	2-1-0	3